

Parameter recommendation for drilling of IMS, aluminium, copper and brass

GCT drill type: 1638 / 1640 / 1835 / 1534

Cutting speed: $v = 250 (- 300)$ m/min

Spindle speed	80.000 rpm max.				200.000 rpm max.			
	D1	f	n	F	R	f	n	F
\emptyset	f = chip load		n = spindle speed		F = infeed		R = retract	
[mm]	[μ m/1]	[rpm]	[m/min]	[m/min]	[μ m/1]	[rpm]	[m/min]	[m/min]
0.30					8	200	1.6	4.0
0.35					10	200	2.0	5.0
0.40					12	200	2.4	6.0
0.45					14	177	2.5	7.0
0.50					16	159	2.6	8.0
0.55					19	145	2.7	9.0
0.60					22	125	2.8	10.0
0.65					24	122	2.9	10.0
0.70					26	114	3.0	10.0
0.75					28	108	3.0	10.0
0.80					30	100	3.0	10.0
0.85					32	95	3.0	10.0
0.90					34	90	3.1	10.0
0.95					37	85	3.1	10.0
1.00	40	80	3.2	10.0	40	80	3.2	10.0
1.05	40	76	3.0	10.0	40	76	3.0	10.0
1.10	40	72	2.9	10.0	40	72	2.9	10.0
1.15	40	69	2.8	10.0	40	69	2.8	10.0
1.20	40	66	2.6	10.0	40	66	2.6	10.0
1.25	40	63	2.6	10.0	40	63	2.6	10.0
1.30	46	61	2.8	10.0	46	61	2.8	10.0
1.35	46	59	2.7	10.0	46	59	2.7	10.0
1.40	46	57	2.6	10.0	46	57	2.6	10.0
1.45 - 1.60	45	52	2.3	10.0	45	52	2.3	10.0
1.65 - 1.80	45	47	2.1	10.0	45	47	2.1	10.0
1.85 - 2.00	45	42	2.0	10.0	45	42	2.0	10.0
2.05 - 2.30	50	36	1.8	10.0	50	36	1.8	10.0
2.35 - 2.60	55	32	1.8	10.0	55	32	1.8	10.0
2.65 - 2.90	55	30	1.6	10.0	55	30	1.6	10.0
2.95 - 3.15	55	26	1.4	10.0	55	26	1.4	10.0
3.175 - 3.95	50	20	1.0	10.0	40	25	1.0	10.0
4.00 - 4.95	45	20	0.9	10.0	32	25	0.8	10.0
5.00 - 5.95	40	20	0.8	10.0	24	25	0.6	10.0
6.00 - 6.40	40	20	0.8	10.0	20	25	0.5	10.0

General recommendations:

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- ⇒ Use an entry material (e.g. phenolic paper approx. 0.50 mm thick).
- ⇒ With ceramic dielectric reduce spindle speed by approx 20%.
- ⇒ With copper reduce spindle speed and feed rate by approx 20%.
- ⇒ For drill- $\emptyset > 4.50$ mm pre-drilling is recommended with approx. 15% of the final diameter.
- ⇒ Max pressure at pressure foot.
- ⇒ Please use minimal quantity lubrication, if possible (ethanol / oil emulsion).